

OBD communication protocol(s) supported:

ISO 15765-4:2011: 'Road vehicles — Diagnostics on Controller Area Network (CAN) — Part 4: Requirements for emission-related systems' , dated 1 November 2001

Service 01

| PID | Description |
|-----|--|
| 01 | Monitor status since DTCs cleared MIL, # of DTC' s Number of Emission D.T.C.(s) MIL Status Continuous Diagnostic Test Supported Misfire Monitoring Fuel System Monitoring Comprehensive Component Monitoring Reserved/J1979 Misfire Monitoring Tests Complete = 0 Fuel System Monitoring Tests Complete = 0 Comprehensive Component Monitoring Tests Complete = 0 Reserved/J1979 Non-Continuous Test Supported Enhanced Evaporative Purge System Oxygen Sensor Oxygen Sensor Heater Non-Continuous Test Results Enhanced Evaporative Purge System Test Complete Oxygen Sensor Test Complete Oxygen Sensor Heater Test Complete |
| 03 | Current Fuel System Status (Fuel System. 1) |
| 04 | Current Calculated Load value |
| 05 | Current Undefaulted Coolant Temperature |
| 06 | Current Short Term Fuel Trim (Bank 1) |
| 07 | Current Long Term Fuel Trim (Bank 1) |
| 0B | Current Undefaulted Manifold Absolute Pressure |
| 0C | Current Undefaulted Engine RPM |
| 0D | Current Undefaulted Vehicle Speed |
| 0E | Current Commanded Ignition timing advance Cyl#1 |
| 0F | Current Undefaulted Intake Air Temperature |
| 11 | Current Undefaulted Absolute Throttle Position A |
| 13 | Location of Manufacturer equipped O2 sensors |
| 14 | (B1-S1) Undefaulted O2 Voltage (B1-S1) Short Term Fuel Trim |
| 1C | On-board Diagnostic System type |
| 1F | Time Since Engine Start |
| 20 | Supported Mode 1 PIDS \$21- \$40 |

| | |
|----|--|
| 21 | MIL On Odometer |
| 2F | Fuel Level Input |
| 33 | Barometric Pressure |
| 40 | Supported Mode 1 PIDS \$41- \$60 |
| 4D | Time run by the engine while MIL is activated |
| 51 | Type of fuel currently being utilized by the vehicle |
| 60 | Supported Mode 1 PIDS \$61- \$80 |
| 7F | Support of Engine Run Time Total Engine Run Time Total Idle Run Time Total Run Time With PTO Active |

Service 02

| Outputs | Description |
|---------|--|
| 02 | Failure ID |
| 03 | Current Fuel System Status (Fuel System. 1) |
| 04 | Current Calculated Load value |
| 05 | Current Undefaulted Coolant Temperature |
| 07 | Current Long Term Fuel Trim - (Bank 1) |
| 0B | Current Undefaulted Manifold Absolute Pressure |
| 0C | Current Undefaulted Engine RPM |
| 0D | Current Undefaulted Vehicle Speed |
| 11 | Current Undefaulted Absolute Throttle Position A |
| 7F | Support of Engine Run Time Total Engine Run Time Total Idle Run Time Total Run Time With PTO Active |

Service 03

| Fault Code | Description of DTC | Class | Active MIL |
|------------|---|-------|------------|
| P 0118 | Engine Coolant Temperature Sensor Circuit High / Open Circuit | 2 | √ |
| P 0117 | Engine Coolant Temperature Sensor Circuit Low | 2 | √ |
| P 0116 | Engine Coolant Temperature Sensor signal performance | 2 | √ |
| P 1116 | Engine Coolant Temperature Sensor signal out of range | 2 | √ |
| P 0335 | Crankshaft Position Sensor "A" Circuit | 1 | √ |
| P 2300 | Ignition Coil "A" Primary Control Circuit Low / Open Circuit | 1 | √ |
| P 0123 | Throttle Position Sensor/Switch "A" Circuit High | 1 | √ |
| P 0122 | Throttle Position Sensor/Switch "A" Circuit Low / Open Circuit | 1 | √ |
| P 0232 | Fuel Pump circuit short High | 1 | √ |
| P 0231 | Fuel Pump circuit short Low / Open Circuit | 1 | √ |
| P 0601 | Internal Control Module Memory Checksum Error | 1 | √ |
| P 0262 | Cylinder 1 Fuel Injector "A" Circuit High | 1 | √ |
| P 0261 | Cylinder 1 Fuel Injector "A" Circuit Low / Open Circuit | 1 | √ |
| P 0108 | Manifold Absolute Pressure Sensor Circuit High | 1 | √ |
| P 0107 | Manifold Absolute Pressure Sensor Circuit Low/Open Circuit | 1 | √ |
| P 3106 | Manifold Absolute Pressure Sensor rationality at low TPS | 2 | √ |
| P 0105 | Manifold Absolute Pressure Sensor signal stuck | 2 | √ |
| P 0113 | Intake Air Temperature Sensor Circuit High / Open Circuit | 1 | √ |
| P 0112 | Intake Air Temperature Sensor Circuit Low | 1 | √ |
| P 0111 | Intake Air Temperature Sensor signal stuck | 2 | √ |
| P 0114 | Intake Air Temperature Sensor Circuit Intermittent | 2 | √ |
| P 0132 | O2 Sensor Circuit High Voltage Bank 1 Sensor 1 | 2 | √ |
| P 0131 | O2 Sensor Circuit Low Voltage Bank 1 Sensor 1 / Open Circuit | 2 | √ |
| P 2195 | O2 Sensor Signal Lean at PE Bank 1 Sensor 1 | 2 | √ |
| P 014D | O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 1 | 3 | √ |
| P 014C | O2 Sensor Slow Response - Rich to Lean Bank 1 Sensor 1 | 3 | √ |
| P 0031 | O2 Sensor Heater Control Circuit Low Bank 1 Sensor 1 / Open Circuit | 1 | √ |
| P 0032 | O2 Sensor Heater Control Circuit High Bank 1 Sensor 1 | 1 | √ |
| P 00D1 | O2 Sensor Heater current low Bank 1 Sensor 1 | 2 | √ |
| P 0301 | Cylinder 1 Misfire Detected | 3 | √ |
| P 0500 | Vehicle Speed Sensor "A" Circuit | 2 | √ |
| P 0505 | Idle air control system error | 2 | √ |

Service 06

| MID | Component | Parameter | Min/Max Test limit | Description | MID |
|------|-----------------------|---|------------------------------------|---|------|
| \$01 | O2 Bank-1 Sensor-1 | Rich to Lean sensor Switch Time (calculated) | Min: 0 Max: calibrated | average switch-time from Rich to Lean | \$01 |
| \$01 | O2 Bank-1 Sensor-1 | Lean to Rich sensor Switch Time (calculated) | Min: 0 Max: calibrated | average switch-time from Lean to Rich | \$01 |
| \$41 | O2 Bank-1 Sensor-1 | O2 Under Heater Current | Min: calculated Max: 65.535 Amp | Under Heater Curren | \$41 |
| \$A2 | Misfire Cylinder-1 | Misfire Counts (calculated) | Min: 0 Max: FFFF | Misfire Counts for last/current driving cycle | \$A2 |

Service 09

| Info Type | Description | Size in Byte |
|-----------|--|--------------|
| 04 | Calibration ID' s Calibration characters are ASCII | 16 |
| 06 | Calibration Verification Number of calibration area | 4 |
| 08 | In-use Performance Tracking: | 8 |
| | OBD Monitoring Conditions Encountered Counts | 2 |
| | Ignition Counter 2 counts | 2 |
| | Front O2 Sensor Monitor Completion Counts Bank 1 | 2 |
| | Front O2 Sensor Monitor Conditions Encountered Counts Bank 1 | 2 |